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16. Abstract

The history of naming the details of the relief on the near and reverse sides of the moon is examined. The book contains lists of the names of craters of the reverse side of the moon in Russian and the Latin spellings.

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TABLE OF CONTENTS PAGE

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1961-1973

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ANNOTATION

The history of naming the details of relief of the near and reverse sides of the moon is examined. Special attention is paid to works of recent years related to investigations of the moon conducted by the aid of automatic stations. The book contains lists of the names of craters of the reverse side of the moon in Russian and the Latin spellings. Coördinates of the named objects are also given. Instances of encountered spellings are particularly examined for the purpose of standardizing the Russian spelling. Brief information is given about scientists in whose honor the craters on the reverse side of the moon were named.

The book can serve as a reference manual for everyone concerned with studying the moon.

INTRODUCTION

/3*

In August of 1970, 513 new names of craters located on the reverse side of the moon were approved at the XIV General Assembly of the International Astronomical Union (Brighton, England). This important international act, which reflects the success of contemporary space technology in photographing the lunar surface, was one of the results of several works whose foundation was laid by developing the images of the reverse side of the moon first obtained in October of 1959 by the "Luna-3" automatic Soviet station.

Photography of the eastern sector of the reverse side of the moon carried out by the "Zond-3" Soviet automatic station in July of 1965 made it possible to create a complete picture of the entire lunar surface for the first time. Subsequent photographs taken in 1966 - 1967 by American satellites of the "Lunar Orbiter" series made it possible to obtain still more detailed data about the surface of the reverse lunar hemisphere. The best quality photographs of individual regions of the reverse side of the moon were obtained in 1968 - 1972 from the "Zond" automatic space stations and the "Apollo" spacecraft. In this period the moon was photographed with black and white and color films, and a survey was made of the surface by special cartographic cameras, making it possible to compile highly accurate maps of the moon. Inasmuch as one must have proper names for the objects depicted on maps for the convenience of using them, work was undertaken within the framework of the International Astronomical Union to name the details of the reverse side of the moon. The first stage of this work was completed in 1970.

A BRIEF HISTORY OF CREATING THE LUNAR NOMENCLATURE /4

Terrestrial telescopic observations of the moon begun back in the 17th century led to the creation of a system of names of different objects of the surface of the visible hemisphere.

*numbers in margin indicate pagination in foreign text.

The first three experiments of introducing lunar nomenclature[1] are those of the Dutchman Langren, who was working in Spain (1645), the Pole Geveliy (1647), and the Italian Riccioli (1651).

Langren basically used the names of scientists, members of the Royal family and noblemen for naming the craters. Geveliy imagined the map of the near hemisphere of the moon as a map of Europe and the adjacent parts of Asia and Africa, giving the lunar objects the names of their terrestrial prototypes. Riccioli himself, like Langren, used a system of personal names, having limited his choice to the name of astronomers, philosophers, and other scientists engaged in investigations of the moon. The Riccioli system was more meaningful and well-planned. The names were arranged taking into account the date of life, nationality, and kind of work of the scientists. The names of the most eminent personalities were given to the largest and most identifiable craters. The dark regions - the maria - were named by Riccioli in accordance with the effect that it seemed the phases of the moon have on weather on the Earth. Therefore, such "meteorological" names as the Sea of Clouds, the Sea of Rains, Rainbow Bay, etc., appeared on the moon, devoid of water and an atmosphere.

The extensive use of the Geveliy and Riccioli maps led to the fact that their systems of names soon were generally recognized and firmly entered science. Even now, after 3 centuries, we use the names of craters and maria introduced by Riccioli and the names of mountains given by Geveliy. Langren's map was published in a limited number of copies, and therefore his system of names was almost never used.

Johann Schreter, an amateur astronomer from Germany, became a pioneer of selenography in the era of more improved telescopes that began in the 18th century. He mapped a large part of the near lunar hemisphere in much greater detail than had been done on the maps that existed before. His work showed that both systems of names that were being used at that time were inadequately complete. Specifically, the Geveliy system was unsuitable because one name frequently applied to a whole group of craters and many names were too long, which made their use on maps difficult. Schreter gave craters over 70 new names

[1] The concept of the lunar nomenclature includes the classification of forms of relief in totality with the accepted list of names of the largest objects and a standard system of designations of the smaller objects.

of astronomers and other scientists and also introduced a large number of additional lunar designations.

The next landmark in the development of the lunar nomenclature was the 1834 publication of the map of the German scientists Baer and Medler. The map was about 1 m in diameter. A system of small craters and isolated hills whose selenographic position was determined by means of measurements made using the telescope served as its coordinate base. The map included most of the Riccioli and Schreter names, 10 Geveliy names, 2 Langren names and over 140 new ones added by Medler. A system was formulated for literal designation of additional small objects: small craters were designated by the name of the closest large crater with the addition of a Latin letter; peaks and valleys - by a Greek letter; capital letters were used for objects whose location was measured and lower case letters were used for other objects. The letters were always located on the side of the object that faced the main crater in order to avoid errors in case of the nearby arrangement of similar additional designations in systems related to the different main craters.

In the second half of the 19th Century, astronomers of different countries created detailed maps of the moon, adding still more new names and replacing the literal designations with names. This spontaneous development of the nomenclature had the result that certain craters each had several different designations. /6

In 1921, for the purpose of standardizing the lunar nomenclature, the newly formed International Astronomical Union (IAU) created a small commission. The activity of this commission was completed in 1935 by the publication of the work of Mary Blagg and Carl Muller, "Named Lunar Formations" (in 2 parts). This work is frequenty called the "Blagg and Muller Catalog" or the "IAU map" [1]. The indicated publication combined, inasmuch as this was possible, the Medler nomenclature with that of all subsequent authors. It was distinguished by the fact that only capital letters were used for additional designations of craters independent of whether the location of the object had been measured. The authors also used letters to designate many small craters and hills whose location had been measured by Frants and Sonder. As the result, the largest and smallest craters received designations, while many intermediate size craters remained nameless.

The system of names developed by Blagg and Muller was accepted at the V General Assembly of the International Astronomical Union (Paris, 1935). The total number of objects that received proper names and designations was about 3500.

The use of the IAU 1935 system of names revealed its many shortcomings. Therefore, one of the tasks of the lunar-planetary laboratory of Arizona University in Tucson (U.S.A.), organized in 1960, became the careful re-examination and expansion of the system of names published in 1935. This work, carried out under the supervision of G. Kuiper and D. Arthur was completed in 1966 with the publication of new map-diagrams and catalogs for four quadrants of the visible hemisphere of the moon (2-5). The new system of names (the so-called LPL system) relied on the 1935 system, making certain refinements in the position of details and their designations. The total number of objects that were designated was 17,000. The minimum diameter of the designated objects was 3.5 km. Duplicate names distinguished only by initials were eliminated the spelling of a number of names was corrected, etc. The basic changes pertained to regions of the boundary zones where nearly 60 new names /7 of craters were introduced. The IAU approved this system at the XII and XIII General Assemblies in 1964 and 1967. Although coordinates were only given for craters in the published catalogs, furrows, peaks, promontories and other objects of the lunar relief were also designated in the map-diagrams appended to these catalogs. The LPL catalog and map were compiled using the best available terrestrial photographs of the moon. Refined map-diagrams of the quadrants were published in 1969 [6, 7].

The study of high-resolution photographs obtained for the visible hemisphere from the "Lunar Orbiter-4" satellite in 1967 shows that many objects designated as craters are really irregularly shaped depressions.

In addition to accepting 513 names for objects on the reverse side of the moon at the XIV IAU General Assembly in 1970, 3 names of regions of the near hemisphere were approved which reflected the successes of rocket technology and cosmonautics in investigating the moon. The region of first contact of a spacecraft with the lunar surface (the "Luna-2" automatic interplanetary station, September, 1959) was given the name Sinus Lunnikus. The region of the first soft landing on the moon (the "Luna-9" automatic interplanetaby station, February, 1966)

was named Planitia Descencus.

The point of lunary landing of the first expedition ("Apollo-11", July, 1969) was named Statio Tranquillitatis, according to the name of the mare on whose surface the first people stayed on the moon.

In 1971, the National Aeronautics and Space Administration of the U.S.A. (NASA) published an atlas of photographs of the near side of the moon obtained by the "Lunar Orbiter-4" satellite [8]. This atlas contains designations and lists of the names of objects; today it is the most complete and detailed reference material on names of objects of the visible lunar hemisphere.

A list of 53 names for craters located both on the near [43] and reverse [10] sides of the moon in the zone covered by the photographic survey made from the "Apollo-15, -16, and -17" spacecraft was approved at the XV General Assembly of the IAU in 1973 (Sidney, Australia). NASA is compiling a lunar topographic orthophoto map (LTO) on the scale of 1:250,000 for this zone which consists of several hundred sheets. New names for small craters were introduced for the purpose of providing each sheet of this map with albeit a single object with a proper name. However, this work is not totally complete. It is still necessary to introduce new names for individual sheets of the LTO map.

THE APPLICATION OF THE LUNAR NOMENCLATURE TO THE REVERSE SIDE OF THE MOON /9

Interpretation of the phototelevision images obtained in 1959 by the "Luna-3" (Fig. 1) automatic interplanetary station for the first time created the prerequisites for applying the nomenclature to the reverse side of the moon [9]. In connection with this, the Academy of Sciences of the USSR formed a special commission to develop suggestions for naming newly discovered objects [10]. The commission submitted names for 18 objects which were later approved at the XI General Assembly of the IAY in 1961 (Berkeley, U.S.A.) [11]. Simultaneously, an examination was made at the assembly of earlier existing principles of naming the lunar formations. The following resolution was the result of this discussion [11];

"...When designating formations of the lunar surface, one should

be governed by the rules, corrections, and improvements that developed earlier in the following way:

a) crater and crater-like formations are given the names of astronomers or eminent scientists[1], posthumously; the names are written using letters of the Latin alphabet and are pronounced according to the recommendations of the country of origin of the scientist;

b) mountains are given Latinized names corresponding to the geographical names of mountains of the earth. Names are given in combination with the noun Montes[2] (Latin - mountains), according to the rules of Latin declination and pronunciation (3 exceptions: Montes d'Alembert, Montes Harbinger, and Montes Leibnitz - were left in view of prolonged use)[3];

c) extensive dark surfaces are given Latinized names that correspond to the mental states of man[4].

Names are given in combination with one of the following nouns (most appropriate to the size of the object): Oceanus, Mare, Lacus, /11
Palus, Sinus (Latin - ocean, sea, lake, swamp, bay), according to the rules of Latin declination and pronunciation (2 exceptions: Mare Humboldtianum, Mare Smythii - were left in view of long use);

d) separate peaks are named according to the same rules as craters; these rules are also valid for promontories and the names of the latter are given in combination with the noun Promontorium (Latin - promontory), for example, Promontorius Laplace - promontory Laplace;

e) fissures and valleys are given the names of the closest names of craters in combination with the noun Rima, Vallis (Latin - fissure, valley), with one exception: Vallis Schroteri - left because of long

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[1]There is a number of exceptions to this rule in the traditional list of names.

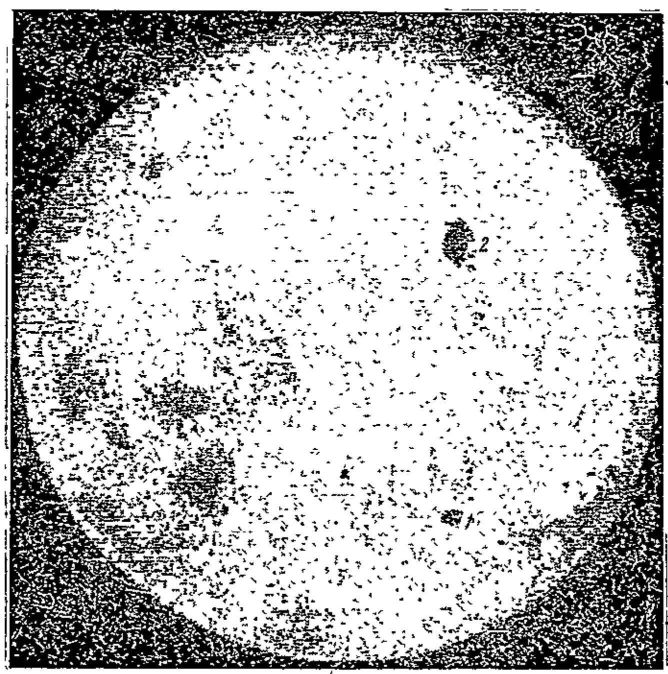
[2]The resolution erroneously spelled it Mons (mountain, singular).

[3]The first and last of these names were removed from the lunar maps at the XIV General Assembly of the IAU in 1970 because these mountains, as photographs taken from lunar satellites showed, are not clear formations.

[4]The unfortunate nature of the formulation of the resolution is because maria are among the names that are given according to weather conditions - clarity, tranquility, dreams.

use;

f) formations without proper names can be designated by means of coordinates. They can also be designated according to the previous classification system when the name of a neighboring crater is used by means of adjoining capital letters of the Latin alphabet to it for craters, depressions, and valleys; lower case letters of the Greek alphabet for hills, highlands, and peaks; roman numerals in combiation with the letter r for Rima (Ir, IIr, ...)[1].



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Figure 1: The first photograph of the reverse side of the moon in history ("Luna-3").

In addition to accepting the cited recommendations and approving the list of names of 18 objects, the resolution contained a list of names whose spelling it was decided to change due to certain refinements of Latin transcription.

Commission 16a on nomenclature and cartography of the lunar surface consisting of the following: Z. Kopal (England) - chairman, O. Dolfus (France), K. Koziyel (Poland), G. Kuiper (U.S.A.), D. Ya Martynov (U.S.S.R.), A. A. Mikhaylov (U.S.S.R.), and M. Minnart (Holland) was

[1]In practice, as a rule, the letter r is not added.

created under Commission 16 of the IAU (planets and satellites) at the XI General Assembly. The tasks of the commission included a standardization of lunar cartographic materials as well as the designation of new topographic details discovered as the result of terrestrial observations as well as in the course of space experiments.

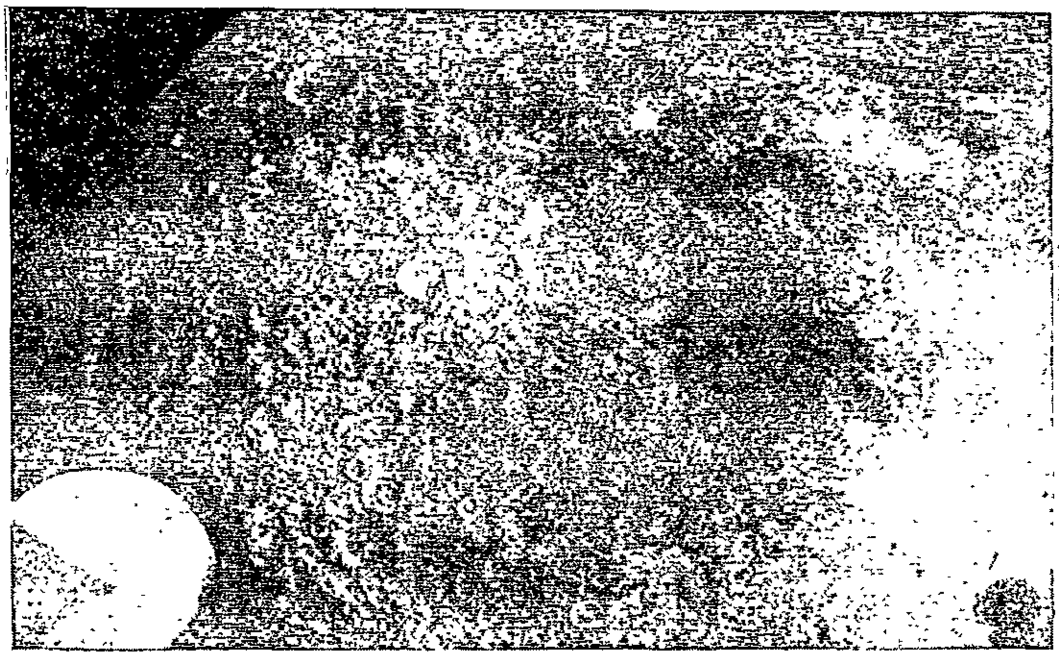
In 1965, as the result of the flight of the "Zond-3" Soviet automatic interplanetary station, new, high-quality photographs of the eastern sector of the reverse side of the moon (Fig. 2) were obtained. Interpretation of the photographs carried out in the Department of Lunar and Planetary Physics of the P. K. Shternberg State Astronomical Institute (GAISh) under the supervision of Doctor of Physico-Mathematical Sciences Yu. N. Lipskiy made it possible to identify about 3500 details ranging in size from hundreds of kilometers to a few kilometers in the photographed zone [12, 13]. These data served as the basis for preparing new suggestions on names of the reverse side of the moon in GAISh. The prepared materials contained the coordinates of the centers of lunar formations and their dimensions as well as biographical data about the scientists whose names it was suggested to immortalize in the lunar names. After the presented materials were examined by a commission of the Academy of Sciences of the U.S.S.R. chaired by Academician A. A. Mikhaylov, they were sent to Commission 17 of the IAU (the moon) for further discussion.

The indicated materials contained suggestions on naming 154 objects on the reverse side of the moon: 150 craters, 1 formation of the marine type and 3 chains of craters. Furthermore, it was suggested to name two regions on the near side of the moon: the region of first contact of a spacecraft with the lunar surface ("Luna-2") and the region of the first soft landing on the lunar surface ("Luna-9"). Lists of the suggested names with the necessary commentaries and map-diagram were published. [14, 15].

The publication of suggestions on names provoked intensive discussion in both the U.S.S.R. and abroad. In the course of further discussion, governed by many requests to increase the number of named objects, the Commission of the Academy of Sciences of the U.S.S.R. sent an additional list of suggestions containing another 78 names of objects to Commission 17 of the IAU. The list had been prepared at GAISh. The additional list, together with the basic one, was

published in the "Atlas of the Reverse Side of the Moon", Part II [16].

In 1966-1967, photography of the reverse side of the moon was continued by the American spacecraft of the "Lunar Orbiter" series (Fig. 3). Suggestions for naming craters on the reverse side of the moon were also prepared for examination at the XIII General Assembly of the IAU according to these materials in the lunar-planetary laboratory of Arizona University (LPL) under the supervision of G. Kuiper.



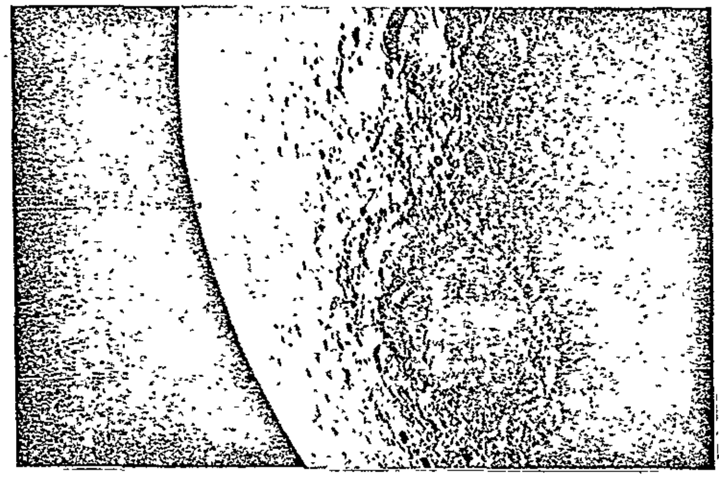
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Figure 2: Photograph of the eastern sector of the dark side of the moon ("Zond-3").

The largest marine formation on the reverse side of the moon was photographed - Mare Orientale - (1) and chains of small craters extending for hundreds of kilometers (2) were first detected. The large ring-shaped depressions with light bottoms - the thalassoids - one of which (3) was named after S. P. Korolev - and characteristic for the dark side were detected. From the left, at the bottom - the photometric scale.

In 1967, the Commission on Nomenclature and Cartography of the Lunar Surface under the chairmanship of Z. Kopal met twice at the XIII General Assembly of the IAU (Prague, ChSSR)

The "Polnaya karta Luny" (Complete Map of the Moon) on a scale of 1:5,000,000 and the "Globus Luny" (Lunar Globe) on a scale of 1:10,000,000; created under the scientific supervision of Yu. N.



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Figure 3: Photograph of a sector of the reverse side of the moon ("Lunar Orbiter-5").

The ring-shaped structure with the dark bottom is Mare Moscoviense, first photographed by the "Luna-3" station in 1959. A number of craters in the vicinity of the Mare bear the names of Soviet cosmonauts: 1 - Komarov, 2 - Belyayev, 3 - Leonov, 4 - Nikolayev, 5 - Tereshkova, 6 - Titov, 7 - Feoktistov, 8 - Shatalov.

Lipskiy, were presented for the commission's examination. The names of objects corresponding to the suggestions sent to the commission earlier were printed in both publications [17, 18]. G. Kuiper presented the "Map of the Reverse Side of the Moon", on a scale of 1:5,000,000 for discussion. This map was compiled according to the materials of photography from the "Lunar Orbiter" and "Zond-3" spacecraft. On this map numbers designated objects selected for subsequent naming. G. Kuiper's suggestions pertained to the necessity of universally distributing the names of objects over the entire dark hemisphere with the presence of albeit one of them in the 10 x 10° quadrant [17, 19].

In the course of the discussion, the following basic concepts were expressed:

1) it is inexpedient to name the formations of the reverse side of the moon by zones ("Lunar Orbiter" zone, "Zond-3" zone, etc.);

2) it is desirable to distribute the name of objects as evenly as possible over the entire invisible hemisphere;

3) it is vital additionally to monitor the identification of objects suggested for naming.

As the result of a discussion that was held, the following decision was made: "The approval of names and permanent designations of details of the dark side of the moon should be put off until the XIV General Assembly of the IAU. A working group will temporarily designate about 500 basic formations of the dark side of the moon by numbers" [17]. It was also decided that the working group will be made up of scientists who are not at work in the field of lunar topography. These scientists will only present suggestions of the appropriate organizations of their country through the National Astronomical Commission. When conducting the indicated work, they are to be governed by the principles presented above and accepted by the IAU earlier. The working group included D. Menzel (U.S.A.) - Chairman, A. A. Mikhaylov (U.S.S.R.), M. Minnart (Holland), O. Dolfus (France), as president of Commission 17 of the IAU (the moon). Subsequently, academician A. A. Mikhaylov was replaced in the working group by Doctor of Physico-Mathematical Sciences B. Yu. Levin. The working group prepared materials in close contact with the corresponding national centers, specifically the Commission of the Academy of Sciences of the U.S.S.R. for naming Lunar Formations, which was headed from 1969 through 1975 by the Vice-President of the Academy of Sciences of the U.S.S.R., Academician A. P. Vinogradov.

In the period between IAU congresses, the working group held 5 meetings: in the U.S.A. (Cambridge, Massachusetts), in France (Paris), in the U.S.S.R. (Moscow), and the other two in France (Medon). The activity of the working group was subordinated to solving two fundamental problems: compiling a list of scientists whose names had been suggested for immortalization in named objects on the reverse side of the moon, and selecting lunar objects primarily subject to naming. At the Moscow meeting, members of the working group were presented with a draft project of a selection of objects on the reverse side of the moon to be named. The draft project had been prepared at the Institute of Space Research of the Academy of Sciences of the U.S.S.R. by A. A. Gurshteyn and K. B. Shingareva. The basis of this project, which had been given the arbitrary name EDP (Even Distribution Project) was the following concepts:

1. In the interests of future cartography of the reverse side of the moon, the craters that are named should be distributed evenly over

the entire territory of the back hemisphere.

2. For the purpose of preserving evenness of names in regions with a low crater density, specifically in the vicinity of Mare Orientale, the diameter of named craters should be taken smaller than that for the typical continental regions.

3. When selecting objects to be named, one should bear in mind not only their dimensions, but also their significance as characteristic orientation points amind the surrounding terrain [20].

The materials presented to the working group contained an analysis of suggestions made before by Yu. N. Lipskiy and G. Kuiper as well as a series of diagrams with objects newly submitted by the Institute for Space Research of the Academy of Sciences of the U.S.S.R. for naming and providing for two stages of solving this problem. The suggestions for the first stage of naming encompassed about 500 objects according to the decision accepted by IAU (17), and the additional submissions for the second stage still contained about 500 objects.

The principles of the EDP project and the specific diagram of arragement of objects for the first stage of naming were approved by the working group and used by it as the foundation for future work. Later, at the initiative of D. Menzel, the assortment of craters was slightly corrected in accordance with the EDP principles.

Besides the initial set of objects, a list of names was agreed upon in principle at the group meetings in Moscow. Specifically, it was decided to include about 40 names of Soviet and American workers in rocket technology in the list. A principle agreement was also achieved to the effect that the list of names, international in its composition, should inasmuch as possible contain easily pronounced names, easy to remember names and uniformly transcribable names inasmuch as scientists of the entire world would have to use them.

The objects selected for naming at the sessions in Moscow were designated by numbers on a map of the reverse side of the moon on the scale of 1:5,000,000 after the appropriate corrections were made with the cooperation of the Center for Aerial Navigation Maps and Information of the U.S. Air Force (ACIC). At the subsequent sessions held in France, a final agreement was reached on naming specific objects; the coordinates of objects and their dimensions were monitored as was their transcription.

It was suggested to arrange the new names in alphabetical order in lines running from east to west in the initial variation. However, this idea was criticized by the cartographic specialists. The latter referred to the poor readability of such a map, and to the difficulties that arise when new names are added when alphabetical interpolation is necessary. As the result, this principle was not used [21].

At the XIV General Assembly of the IAU held in 1970 (Brighton, England), the working group presented a map of the dark side of the moon on the scale of 1:10,000,000 for the discussion of Commission 17 of the IAU. With the cooperation of ACIC, the map already did not have numbers according to the list, but the suggested names themselves. The names had been divided into 5 groups depending on the contribution the given person had made to science and were awarded according to craters of greater or lesser dimensions. In the process of discussion, the list on the whole was approved, but a number of corrections were made in it. By now the IAU has published a catalog of new names of craters of the dark side of the moon [21].

It should be noted that unlike the visible side, where names have been given basically according to the names of scientists whose work is related to investigating the moon to one degree of another, no such limitations of this sort were imposed on the reverse side. In /18 this new list one can encounter the names of eminent workers from different fields of the exact, natural, and humanitarian sciences, philosophers, fiction writers and others. Representatives of a number of countries have entered the lunar Pantheon for the first time and these are scientists of Australia, India, Canada, Mexico, Romania, Finland and Japan.

The working group deviated from the rules, having named 12 craters after our contemporaries. Six craters on the reverse side of the moon and located in the vicinity of Mare Moscoviense were named in honor of the Soviet cosmonauts Leonov, Nikolayev, Tereshkova, Titov, Feoktistov and Shatalov; three craters in the vicinity of the giant Apollo crater were named in honor of the American astronauts Anders, Borman and Lovell and 3 craters of the visible side, Sabin E, Sabin B and Sabin D, located in the Mare Tranquillitatus were renamed in honor of the participants of the first lunar expedition, Armstrong, Aldrich, and Collins.

The next step in the development of the nomenclature of the dark hemisphere of the moon was the approval of names for 53 small crater (43 on the visible and 10 on the reverse side) at the 15th General Assembly of the IAU in 1973 (Sidney, Australia) and the acceptance for discussion of a list of names for preliminary naming of craters in the future. This was undertaken to ensure that each sheet (4° latitude and 5° longitude) of the lunar topographic orthophoto map LTO on the scale of 1:250,000, whose publication was begun in the U.S.A. based on the photographs from the "Apollo-15, -16, and -17" spacecraft, would have at least one crater with a proper name.

PROSPECTIVES OF DEVELOPMENT OF THE LUNAR NOMENCLATURE

The future prospectives of development of the lunar nomenclature basically pertain to extending it to small topographic objects. Thi question was specifically discussed in sessions of the working group in naming extraterrestrial objects under the Socio-Economic Council of the United Nations in 1972.

The report of A. A. Gurshteyn and K. B. Shingareva (the Institute of Space Research of the Academy of Sciences of the U.S.S.R.) was pr sented to Commission 17 (the moon) of the IAU in 1970. The report presented an original digital system of designating small topographi objects [22]. It was suggested to introduce a dependency between th number of places in a number and the size of the objects. Such a numering system is more informative than the existing literal indexe for small craters since it makes it possible to judge density of any particular objects in an area bounded by the map sheet of a given scale.

K. Borkovskiy (U.S.A.) suggested a system of designations of topo graphic objects based on the "Luniz-1" computer language he develope [23]. However, for cartographic duplication an aural perception the designations are entirely unsuitable inasmuch as they are words of the "ze-no^3-to-to^2" type that contain the coordinates of the object in coded form.

In 1973, at the XV General Assembly of the IAU, a group was forme under Commission 17 for lunar nomenclature. The group was made up o the following: O. Dolfus (France), G. Mazurski (U.S.A.), D. Menzel (U.S.A.), Chairman, P. Millman (Canada), S. Rankorn (England), as

President of Commission 17, K. P. Florenskiy (U.S.S.R.) and F. El'-B (U.S.A.). Since 1975, P. Millman has been fulfilling the duties of Group Chairman and the group has included one more representative fr the U.S.S.R. - V. V. Shevchenko. The tasks of this group include th future development of nomenclature of the visible and dark hemispher of the moon in accordance with the requirements of lunar cartography and the recommendations of the XV IAU General Assembly. These recommendations provide for the application of names to the Dorsa (mar ridges), the Catena (crater chains), and the Rima and Fossa (convolu and straight fissures). Suggestions have also been made to name 144 regions into which the surface of the moon is divided in accordance with the sheet numbering of the "lunar astronautical chart" LAC on t scale of 1:1,000,000. There are presently only 144 sheets of the LA map located in the central part of the visible hemisphere. Names have been simultaneously suggested for regions covered by sheets of the "lunar topographic orthophoto map" LTO on the 1:250,000 scale. This map encompasses about 20% of the surface of the moon and the total number of sheets exceeds 350.

The practice of naming small objects in regions of direct investigations on the lunar surface was approved at the XV General Assemb of the IAU. Elements of relief in regions of work of the "Apollo" expeditions and the "Lunokhod" automatic stations were once given such names. The names were given in order briefly to designate the most notable and important objects. Thus, for example, in the regic of "Lunokhod-2" operation names were chosen based on the appearance of the given object or its location relative to the landing point of the apparatus: Pologiy crater, Pryamaya Rima, Blizhniy Promontorium, etc. [24].

Naming the small objects is not the single pressing problem of th development of the lunar nomenclature. There is a significant numbe of large objects that need designation. Besides the traditional assortment of named objects, it is suggested to introduce names for large regions of the continent which are identified by their characteristic features (for example, for the continent between the Sea of Rains and the Sea of Cold, the continent between the Seas of Abundar Tranquility, Nectar, etc.). It should be noted that the names of su objects were already on the Geveliy and Riccioli maps but were not

subsequently established, although the need for such names is obvious
Names are also needed for a number of bays and straits of the lunar maria.

THE RUSSIAN SPELLING OF NAMES OF OBJECTS ON THE DARK SIDE OF THE MOON

The necessity of using the new names approved by the IAU in 1970 in carrying out cartographic work of the moon in the U.S.S.R. required the development of a single variation of their Russian spelling. Five forms can be used for spelling foreign names on maps: local official, phonetic, transliteration, traditional and translated [25]. In Soviet cartographic practice, the arbitrary phonetic and traditional forms are predominantly used for transcribing foreign spellings. Exceptions include the relatively limited use of the translated form and the transliteration of names whose true pronunciation is difficult to establish (names in little-studied languages or written languages).

The spelling approved by the IAU in accordance with the rules cited above is the official form of the names. According to these rules, the names of mountains, extensive dark regions, (oceans, seas, lakes, swamps, bays) and terms that determine the kind of object (sea, promontory, mountain, etc.) are written in Latin. This is the result of a tradition that began in the past when all scientific works were written in Latin. The transcription of names of the mentioned objects in the Russian language is not particularly difficult. The designations of the lunar mountains, which correspond to the geographical names of mountains of the Earth, are transcribed in accordance with the conventional spelling of these names on geographical maps. The designations of the extensive dark regions are transcribed according to the traditional form of translating these names into the Russian language (although in this case there are occasionally different variations, for example, Mare Fecunditatis was translated as the Sea of Fertility (Mare Plodorodiya) before but now a different variation is used most often - the Sea of Abundance (Mare Izobiliya)).

Transcriptions of the names of craters, individual mountains and promontories designated by the last names of scientists of different nationalities in the Russian language is a more complex problem than the transcription of the names of mountains and marine regions. If

the traditional form of Russian spelling of the corresponding last names is used for names of the visible hemisphere that basically con tain the names of scientists of antiquity and the middle ages, then for a significant part of the names of the reverse hemisphere, basic containing the names of modern scientists, there is no traditional f or the form is disputed.

During the development of the Russian variation of names of the d side of the moon, both the traditional spelling of names that long a entered the scientific literature in the Russian language and the original transcription of names suggested by Professor D. Menzel and Professor M. Minnart, members of the working group on lunar nomenclature under Commission 17 of the IAU were borne in mind. A variat was chosen for last names that have no traditional, widely accepted spelling in the Russian which most accurately duplicates the pronunciation of the names according to the referenced lists of transcript and rules of pronunciation in the appropriate language, i.e., the ph netic form of transcribing the name. The necessary consultations we received in the Institute of Languages of the Academy of Sciences of the U.S.S.R., in the Department of Geographical Names of the Central Scientific Institute of Geodesy, Aerial Photography and Cartography, in the editorial offices of the Bol'shoy sovetskaya entsiklopediya (the Great Soviet Encyclopedia) and in the All-Union Institute of Scientific and Technical Information.

No single variation of Russian spelling could be developed for a number of names. Such names are marked in the list by two asterisks and variations of their spelling are given in Appendix 2 with the necessary comments.

A number of names of craters approved in 1970 have incorrect Lati spelling. This pertains to the names of Russian and Soviet scientis In the official IAU list [21] these names are written in Latin lette according to the rules of transcription in English, which prevents the perception of their national origin to a certain degree. In accordance to a resolution of the General Meeting of the Academy of Sciences of the U.S.S.R. in 1925, last names with original spelling in the Russian alphabet must be written in the so-called academic Latinization. These names are marked with a single asterisk and

their spelling in the academic Latinization is given in Appendix 1. The spelling of certain of these names was corrected at the XV IAU General Assembly in 1973, but this only pertained to part of the nam ending in -iy (the ending -y was replaced by -ij). However, in this case an incorrect correction of the name Rynin occurred: the incorre Rijnin was introduced in place of Rynin.

A number of names in the list approved in 1970 [21] require refinement of the coordinates because formless, poorly recognizable depressions are located in the indicated places. Appendix 3 gives the characteristics of such formations.

One should emphasize one feature of the lunar names. The terms that determine the kind of object (sea, promontory, valley, etc.) ar in front of the proper name and are written with a capital letter (Mare Krizisov, Mys Oliviy, Dolina Reyta, etc.)

NAMES ON THE MAP ON THE REVERSE SIDE OF THE MOON

The International Astronomical Union's approval of 513 names for objects on the reverse side of the moon in 1970 was the result of the first stage of work in extending the lunar nomenclature to the dark side of our natural satellite. The introduction of the new names, on the one hand, corresponded to the requirements of the luna cartography and on the other hand had the goal of immortalizing a number of names that hold an honorable place in the history of mankind.

The achievements of Soviet cosmonautics in the investigation of the reverse side of the moon were reflected in a number of names. The Mare Moscoviense was named in memory of the fact that photograph of the reverse side of the moon were first obtained by the "Luna-3" Soviet automatic station in November, 1959. The Mare Ingenii was given the name of the first Soviet space rocket launched toward the moon in Januar, 1959, which entered a heliocentric orbit and became an artificial planet of the Solar System.

Three giant craters on the reverse side were named after our fellow countrymen - the creator of the periodic table of the elements D. I. Mendeleyev, the designer of space rocket systems, S. P. Korole and the first Earth cosmonaut, Yu. A. Gagarin. One of the most note

worthy craters on the reverse side was named in honor of the founder of cosmonautics, K. E. Tsiolkovskiy and a number of craters near it were named after figures of Soviet cosmonautics and rocket building. These are the craters Kondratyku, Langemak, Zhiritskiy, Babakin, Dobrovol'skiy, Volkov and Patsayev.

The names of eminent scientists from different fields of knowledg geography and geology, mathematics and biology, astronomy and medicine, physics and chemistry - have been immortalized in the named ob jects on the reverse side of the moon. Thus, we see the craters Gyu Obruchev, Chebyshev, Mendel', Gertssprung, Gippocrat, Vavilov and Butlerov on the map. The crater Champollion reminds one of the Frenc scientist who discovered the secret of the ancient Egyptian hieroglyphics. The name of the leaders of the Russian around-the-world expedition that discovered Antarctica is borne by the crater Bellins gauzen. The crater Baba preserves the memory of an eminent Indian scientist who worked in the field of nuclear physics. The names of the Hungarian mathematician Bol'yay, the German geophysicist Vegener the Dutch chemist Van't Hoff, the Soviet geophysicist Krasovskiy, th American physicist Michaelson, and the Czech physiologist Purkinje have been immortalized.

A number of craters were given the names of fiction writers who depicted flights to the moon and the lives of its fantastic inhabita in their works. These are the Jules Verne, H. G. Wells, and Cyrano de Bergerac craters. One of the large craters on the dark side of t moon was named Apollo in memory of the first real manned flight to the moon (after the name of the American manned lunar flight prograr Several craters near Apollo bear the names of American astronauts ju as a number of craters in the vicinity of Mare Moscoviense have beer named after Soviet cosmonauts.

The list of names approved in 1970 basically includes the names o scientists who lived in the 19th and 20th centuries, but contains the names of scientists of antiquity and the middle ages. A small crater identified by a crown of light rays of gigantic length was named Dzhordana Bruno. The names of Chinese astronomers of the firs to fifth centuries, Chzhan Khena, Shi Shenya, Tszu Chun-Chzhi, the British mathematician and astronomer of the sixteenth-seventeenth centuries, Thomas Harriot, who drew the most ancient map of the moo

known to us and compiled according to telescopic observations[1] have been immortalized.

Two craters were named after heroes of ancient Greek mythology, Daedalus and Icarus, one of whom made wings and the other flew towar the sun on them. The myth of Icarus was realized before our eyes. Man entered space, took the first steps on the moon, and his "eyes" and "hands" (automatic stations) have reached the closest planets. The prophetic words of K. E. Tsiolkovskiy that mankind "first will timidly step outside the limits of the atmosphere and will then conquer all space near the Sun" are becoming real. And the memory of those who significantly facilitated this is preserved in the names o the gigantic ring-shaped mountain-craters on our eternal satellite - the Moon.

* * *

The lists contain all of the names of objects located on the dark side of the moon (90° east longitude - 180° - 90° west longitude), and approved at the XI, XII, XIV and XV IAU General Assemblies in 1961, 1964, 1970 and 1973.

In the first list, (p. 23), the names of objects of relief are arranged in Russian alphabetical order. Their Latin spelling and coordinates are also indicated.

The second list (p. 38) only gives the names of craters in Latin alphabetical order and indicates their Russian spelling.

Appendix 1 (p. 45) gives a list of names which require refinement of the Latin spelling. Appendix 2 (p. 46) gives explanations of the Russian transcription of certain names. Appendix 3 (p. 48) list the craters whose coordinates need refining.

In the period of preparing the manuscript of this work for publication, the "Atlas obratnoy storony Luny" (Atlas of the Reverse Side of the Moon), Part III was published. As an appendix, the atla

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[1]In general, the most ancient map of the moon that has come down to our time is one compiled prior to 1603 by U. Gilbert according to ob servations made by the naked eye [26, 27]. This map only remotely imparts the face of the moon, but it already has several names of re gions of the lunar surface. Gilbert is better known as an investigator of terrestrial magnetism.

contains information about scientists and technicians for whom crate on the reverse side of the moon are named. In individual cases, the Latin spellings of last names in the atlas differ from those cited i this work. In this regard one should specially note that the official IAU list published in the journal "Space Science Reviews" (1971 Volume 12, pp. 136-186) was the basis of Latin spelling. This list includes the corrections and supplements ratified at the XV General Assembly of the IAU (Sidney, 1973). The Latin spelling does not always correspond to the IAU list in the atlas.

The absence of the names of Armstrong, Aldrin, Collins, Porter ar Barabashov in our list listed in the atlas is because the first four names pertain to the visible side, and the last one still has not been approved by official decision of the IAU. Still a number of na approved in 1970 have not been included in our list, inasmuch as the pertain to the libration zone of the visible hemisphere.

The basic task of the list cited in the atlas was to give biographical information about scientists and technicians for whom the craters are named. In connection with this, the question of transscription of the names in the Russian language is not examined specially in the atlas and applicable to the goals of mapping the rever side of the moon in a unitary system on the basis of a certain general approach it is solved in our work.

The Chairman of the Commission of the Academy of Sciences of the U.S.S.R. on naming the lunar formations, Academician A. P. Vinogradc gave a great deal of assistance in work on this book.

The authors consider it their accepted duty to express gratitude to Professor B. Yu. Levin and to the Head of the Laboratory of Comparitive Planetology of GEOKhI of the Academy of Sciences of the U.S.S.R., K. P. Florenskiy, for examining the manuscript and providi additional material and consultation.

During the development of the Russian variation of the names of objects on the reverse side of the moon and also during preparation of the Latin spelling of the Russian names, a great deal of assistar was given by A. V. Superanskaya (the Institute of Linguistics of the Academy of Sciences of the U.S.S.R.), G. P. Bondaruk (the department of Geographical Names of TsNIIGAiK), L. F. Rif and M. D. Drinevich (the Department of Transcription of BSE) and N. B. Lavrova (the

Library of the State Astronomical Institute imeni P. K. Shternberg), to whom the authors also express their profound gratitude.

LIST 1

Names of objects of relief on the reverse side of the moon (in Russian alphabetical order).

Russian spelling	Latin spelling	coordinates latitude	coordinates longitude
		Craters	
Аббе	Abbe	58°Ю	174°В
Абу-ль-Вафа	Abul Wafa	2 С	117 В
Авиценна	Avicenna	39 С	97 З
Авогадро	Avogadro	64 С	165 В
Алехин	Alekhin *	68 Ю	131 З
Аль-Бируни	Al-Biruni	18 С	93 В
Амичи	Amici	10 Ю	172 З
Андерс	Anders	42 Ю	144 З
Андерсон	Anderson	16 С	171 В
Антониади	Antoniadi	69 Ю	173 З
Аполлон	Apollo	35 Ю	155 З
Аррениус	Arrhenius	55 Ю	91 З
Артамонов	Artamonov	26 С	104 В
Артемьев	Artem'ev *	10 С	145 З
Баба	Bhabha	56 Ю	165 З
Бабакин	Babakin	21 Ю	123 В
Баклунд	Baklund	16 Ю	103 В
Бальде	Baldet	54 Ю	151 З
Барбье	Barbier	24 Ю	158 В
Баррингер	Barringer	29 Ю	151 З
Бартельс	Bartels	24 С	90 З
Бейеринк	Beijerinck	13 Ю	152 В
Беккерель	Becquerel	41 С	129 В
Белл	Bell	22 С	97 З
Беллинсгаузен	Bellinsgauzen	61 Ю	164 З
Белопольский	Belopolskij	18 Ю	128 З
Белькович	Belkovich *	62 С	88 В
Беляев	Belyaev *	23 С	143 В
Бергстранд	Bergstrand	19 Ю	176 В
Беркнер	Berkner	25 С	105 З
Берлаге	Berlage	64 Ю	164 З
Бечварж	Bečvař	2 Ю	125 В
Бейс-Баллот	Buys-Ballot	21 С	175 В
Биркеланд	Birkeland	30 Ю	174 В
Биркхоф **	Birkhoff	59 С	148 З

LIST 1 (continued)

Russian spelling	Latin spelling	coordinates latitude	coordinates longitude
	Craters		
Блажко	Blazhko	31°С	148°З
Бобоне	Bobone	26 С	132 З
Бозе	Bose	54 Ю	170 З
Бойль	Boyle	54 Ю	178 В
Больцман	Boltzmann	74 Ю	93 З
Больяй **	Bolyai	34 Ю	125 В
Борман	Borman	37 Ю	143 З
Брауэр **	Brouwer	36 Ю	125 З
Брашир **	Brashear	74 Ю	172 З
Бредихин	Bredikhin	17 С	158 З
Бриджмэн **	Bridgman	44 С	137 В
Бруннер	Brunner	10 Ю	91 В
Брэгг	Bragg	42 С	103 З
Бутлеров	Butlerov	12 С	110 З
Бъеркнес	Bjerknes	38 Ю	113 В
Бэбкок **	Babcock	4 С	94 В
Бюиссон	Buisson	1 Ю	113 В
Бюффон	Buffon	41 Ю	134 З
Вавилов	Vavilov	1 Ю	139 З
Валье	Valier	7 С	174 В
Ван-Вейк	Van-Wijk	63 Ю	119 В
Ван Гент	Van Gent	16 С	160 В
Ван Гу	Van Hoo	11 Ю	139 З
Ван де Грааф **	Van de Graaff	27 Ю	172 В
Ван ден Берг	Van den Bergh	31 С	159 З
Ван дер Ваальс	Van der Waals	44 Ю	119 В
Ван Маанен **	Van Maanen	36 С	127 В
Ван Райн **	Van Rhijn	53 С	145 В
Вант Гофф	Van't Hoff	62 С	132 З
Вашакидзе	Vashakidze	44 С	93 В
Вебер	Weber	50 С	124 З
Вегенер	Wegener	45 С	113 З
Везалий	Vesalius	3 Ю	115 В
Вейль **	Weyl	16 С	120 З
Векслер	Wexler	69 Ю	90 В
Вейнинг-Мейнес**	Vening-Meinesz	0	163 В
Вентрис	Ventris	5 Ю	158 В
Вернадский	Vernadskij	23 С	130 В

LIST 1 (continued)

Russian spelling	Latin spelling	coordinates latitude	longitude
	Craters		
Вестин	Vestine	34°С	94°В
Ветчинкин	Vetchinkin *	10 С	131 В
Вильев	Vil'ev *	6 Ю	144 В
Вильзинг	Wilsing	22 Ю	155 З
Винер	Wiener	41 С	146 В
Винклер	Winkler	42 С	179 З
Вихерт	Wiechert	84 Ю	165 В
Волков	Volkov	13 Ю	131 В
Волтьер	Woltjer	45 С	160 З
Вольтерра	Volterra	57 С	131 В
Воскресенский	Voskresenskij	28 С	88 З
Вуд	Wood	44 С	121 З
Гаврилов	Gavrilov	17 С	131 В
Гагарин	Gagarin	20 Ю	149 В
Гадомский	Gadomski	36 С	147 З
Галуа	Galois	16 Ю	153 З
Гам	Gum	40 Ю	89 В
Гамов	Gamow	65 С	144 В
Гансвиндт	Ganswindt	79 Ю	110 В
Ганский	Ganskij	10 Ю	97 В
Гаравито	Garavito	48 Ю	157 В
Гарвей **	Harvey	19 С	147 З
Гартман **	Hartmann	3 С	135 В
Гейгер **	Geiger	14 Ю	158 В
Гендерсон **	Henderson	5 С	152 В
Герасимович *	Gerasimovich *	23 Ю	124 З
Герберт Уэллс	H. G Wells	41 С	122 В
Гернсбак	Gernsback	36 Ю	99 В
Герц	Hertz	13 С	104 В
Герцшпрунг **	Hertzsprung	0	129 З
Геттон **	Hutton	37 С	169 В
Гильберт **	Hilbert	18 Ю	108 В
Гинцель	Ginzel	14 С	97 В
Гиппократ **	Hippocrates	71 С	146 З
Глазенап	Glazenap	2 Ю	138 В
Голицын	Golitsyn *	25 Ю	105 З
Головин	Golovin	40 С	161 В
Гофмейстер **	Hoffmeister	15 С	137 В

LIST 1 (continued)

Russian spelling	Latin spelling	coordinates latitude	longitude
	Craters		
Го Шоу-цзян	Kuo Shou Ching	8°C	134°З
Графф	Graff	43 Ю	88 З
Грачев	Grachev *	3 Ю	108 З
Грегори	Gregory	2 С	127 В
Григг	Grigg	13 С	130 З
Грин	Green	4 С	133 В
Гриссом	Grissom	48 Ю	149 З
Гротриан	Grotrian	66 Ю	128 В
Гутник	Guthnick	48 Ю	94 З
Гюйо **	Guyot	11 С	117 В
Гюльстранд	Gullstrand	45 С	129 З
Дайсон	Dyson	61 С	121 З
Д'Аламбер	D'Alembert	52 С	164 В
Данжон	Danjon	11 Ю	123 В
Данте	Dante	25 С	180
Дас	Das	27 Ю	138 З
Дебай	Debye	50 С	177 З
Дедал	Daedalus	6 Ю	180
Деллинджер	Dellinger	7 Ю	140 В
Дельпорт	Delporte	16 Ю	121 В
Деннинг	Denning	16 Ю	143 В
Де Руа	De Roy	55 Ю	99 З
Де Форест	De Forest	77 Ю	162 З
Де Фриз	De Vries	20 Ю	177 З
Дейч **	Deutsch	24 С	110 В
Дженнер	Jenner	42 Ю	96 В
Джинс	Jeanes	56 Ю	91 В
Джордано Бруно	Giordano Bruno	36 С	103 В
Джоуль	Joule	27 С	144 З
Джэксон	Jackson	22 С	163 З
Дзевульский	Dziewulski	21 С	99 В
Дирихле	Dirichlet	10 С	151 З
Добровольский	Dobrovol'skij	13 Ю	129 В
Доннер	Donner	31 Ю	98 В
Доплер	Doppler	13 Ю	160 З
Доусон	Dawson	67 Ю	134 З
Драйден	Dryden	33 Ю	157 З
Дрейер	Dreyer	10 С	97 В

LIST 1 (continued)

Russian spelling	Latin spelling	coordinates latitude	longitude

Craters

Друде	Drude	39°Ю	91°З
Дуглас	Douglass	35 С	122 З
Дунер	Duner	45 С	179 В
Дьюар	Dewar	3 Ю	166 В
Дэвиссон	Davisson	38 Ю	175 З
Дэган **	Dugan	65 С	103 В
Дюфе	Dufay	5 С	170 В
Евдокимов	Evdokimov	35 С	153 З
Жигмонди	Zsigmondy	59 С	105 З
Жирицкий	Zhiritskij *	25 Ю	120 В
Жолио	Joliot	26 С	94 В
Жуковский	Zhukovskij *	8 С	167 З
Жюль Верн	Jules Verne	36 Ю	146 В
Зайдель	Seidel	33 Ю	152 В
Занстра	Zanstra	3 С	124 В
Зееман	Zeeman	75 Ю	135 З
Зелинский	Zelinskij	29 Ю	167 В
Зенгер	Saenger	4 С	102 В
Зерпике	Zernike	18 С	168 В
Зидентопф	Siedentopf	22 С	135 В
Зоммерфельд	Sommerfeld	65 С	163 З
Зундман	Sundman	11 С	93 З
Ибн Юнус	Ibn Yunus	14 С	91 В
Идельсон	Idel'son	82 Ю	114 В
Ижак	Izsak	23 Ю	117 В
Икар	Icarus	6 Ю	173 З
Ингаллс	Ingalls	26 С	153 З
Иннес	Innes	28 С	119 В
Иоффе	Ioffe	15 Ю	129 З
Кабанн	Cabannes	61 Ю	171 З
Каджори	Cajori	48 Ю	168 В
Камерлинг Оннес	Kamerlingh Onnes	15 С	116 З
Канниццаро	Cannizzaro	55 С	100 З
Кантор	Cantor	38 С	118 В
Карвер	Carver	43 Ю	127 В
Карно	Carnot	52 С	144 З
Карпинский	Karpinskij	73 С	166 В
Кассегрен	Kassegrain	52 Ю	113 В

LIST 1 (continued)

Russian spelling	Latin spelling	coordinates latitude	longitude

Craters

Каталан	Catalan	46°Ю	87°З
Качальский	Katchalsky	6 С	116 В
Кекуле	Kekulé	16 С	138 З
Кетле	Quételet	43 С	135 З
Кибальчич	Kibal'chich *	2 С	147 З
Кидинну	Kidinnu	36 С	123 В
Килер	Keeler	10 Ю	162 В
Кимура	Kimura	57 Ю	118 В
Кинг	King	5 С	120 В
Кирквуд	Kirkwood	69 С	157 З
Киронс	Kearons	12 Ю	113 З
Кларк	Clark	38 Ю	119 В
Клейменов	Klejmenov	33 Ю	141 З
Клют	Klute	37 С	142 З
Кобленц	Coblentz	38 Ю	126 В
Ковалевская	Kovalevskaya *	31 С	129 З
Ковальский	Koval'skij	22 Ю	101 В
Кокрофт **	Cockcroft	30 С	164 З
Кольхёрстер	Kolhörster	10 С	114 З
Кольшюттер	Kohlschütter	15 С	154 В
Комаров	Komarov	25 С	153 В
Комптон	Compton	56 С	105 В
Комри	Comrie	23 С	113 З
Комсток	Comstock	21 С	122 З
Конгрив	Congreve	0	168 З
Кондратюк	Kondratyuk *	15 Ю	115 В
Константинов	Konstantinov	20 С	159 В
Копф **	Kopff	17 Ю	90 З
Кориолис	Coriolis	0	172 В
Королев	Korolev	5 Ю	157 З
Костинский	Kostinskij	14 С	118 В
Кох	Koch	43 Ю	150 В
Крамерс	Kramers	53 С	128 З
Красовский	Krasovskij	4 С	176 З
Кремона	Cremona	67 С	90 З
Кретьен	Chrétien	47 Ю	163 В
Крокко	Crocco	47 Ю	150 В
Кроммелин	Crommelin	68 Ю	147 З

LIST 1 (continued)

Russian spelling	Latin spelling	coordinates latitude	coordinates longitude
	Craters		
Крукс	Crookes	11°Ю	165°З
Крылов	Krylov	35 С	167 З
Куглер	Kugler	53 Ю	104 В
Кулик	Kulik	42 С	155 З
Кулон	Coulomb	54 С	115 З
Купер	Cooper	53 С	176 В
Курчатов	Kurchatov *	38 С	142 В
Кэмпбелл **	Campbell	45 С	125 В
Кюри	Curie	23 Ю	92 В
Лавелл **	Lovell	39 Ю	149 З
Лавлейс	Lovelace	82 С	107 З
Лайман	Lyman	65 Ю	162 В
Лаккини	Lacchini	41 С	107 З
Лампланд	Lampland	31 Ю	119 В
Лангемак	Langemak	10 Ю	119 В
Ландау	Landau	42 С	119 З
Ланжевен	Langevin	44 С	162 В
Лармор	Larmor	32 С	180
Лауритсен	Lauritsen	27 Ю	96 В
Лауэ	Laue	28 С	97 З
Лебедев	Lebedev	48 Ю	108 В
Лебединский	Lebedinskij	8 С	165 З
Левенгук	Leeuwenhoek	30 Ю	179 З
Леви-Чивита	Levi-Civita	24 Ю	143 В
Левкипп	Leucippus	29 С	116 З
Лей	Ley	43 С	154 В
Лейбниц	Leibnitz	38 Ю	178 В
Лейн	Lane	9 Ю	132 В
Лейшнер **	Leuschner	1 С	109 З
Леметр	Lemaître	62 Ю	150 З
Ленгмюр	Langmuir	36 Ю	129 З
Ленц	Lenz	3 С	102 З
Леонов	Leonov	19 С	148 В
Ливитт **	Leavitt	46 Ю	140 З
Линдблад	Lindblad	70 С	99 З
Литке	Litke	17 Ю	123 В
Лобачевский	Lobachevskij *	10 С	113 В
Лодыгин	Lodygin	18 Ю	147 З

LIST 1 (continued)

Russian spelling	Latin spelling	coordinates latitude	coordinates longitude
	Craters		
Ломоносов	Lomonosov	27°C	98°В
Лоренц	Lorentz	34 С	100 З
Лоуэлл	Lowell	13 Ю	103 З
Лукреций	Lucretius	9 Ю	121 З
Лундмарк	Lundmark	33 Ю	152 В
Льюис ***	Lewis	19 Ю	114 З
Лэмб	Lamb	43 Ю	101 В
Людвиг	Ludwig	7 Ю	97 В
Ляв **	Love	6 Ю	129 В
Майкельсон	Michelson	6 С	121 З
Мак-Келлар	McKellar	16 Ю	171 З
Мак-Лафлин	McLaughlin	47 С	93 З
Мак-Мат	McMath	15 С	167 З
Мак-Налли	McNally	22 С	127 З
Максвелл	Maxwell	30 С	99 В
Максутов	Maksutov	41 Ю	169 З
Малый	Malyi	22 С	105 В
Мандельштам	Mandel'shtam	6 С	162 В
Мариотт	Mariotte	29 Ю	140 З
Маркони	Marconi	9 Ю	145 В
Марци	Marci	22 С	169 З
Маундер	Maunder	14 Ю	94 З
Мах	Mach	18 С	149 З
Меггерс	Meggers	24 С	123 В
Мезенцев	Mezentsev	72 С	129 З
Мейтнер	Meitner	11 Ю	113 В
Менделеев	Mendeleev	6 С	141 В
Мендель	Mendel	49 Ю	110 З
Меррилл	Merrill	74 С	116 З
Мечников	Mechnikov *	11 Ю	149 З
Мещерский	Meshcherskij *	12 С	125 В
Мёбиус	Möbius	16 С	101 В
Миз	Mees	14 С	96 З
Миланкович	Milanković	77 С	170 В
Милликен	Millikan	47 С	121 В
Миллс	Mills	9 С	156 В
Милн	Milne	31 Ю	113 В
Минёр	Mineur	25 С	162 З

LIST 1 (continued)

Russian spelling	Latin spelling	coordinates latitude	coordinates longitude
	Craters		
Минковский	Minkowski	56°Ю	145°З
Миннарт	Minnaert	67 Ю	179 В
Митра	Mitra	18 С	155 З
Мозли	Moseley	21 С	90 З
Моисеев	Moiseev	9 С	103 В
Монгольфье	Montgolfier	47 С	160 З
Морзе	Morse	22 С	175 З
Морозов	Morozov	5 С	127 В
Мохоровичич	Mohorovičič	19 Ю	165 З
Мультон	Moulton	61 Ю	97 В
Мур	Moore	37 С	178 З
Нагаока	Nagaoka	20 С	154 В
Нансен	Nansen	81 С	93 В
Нассау	Nassau	25 Ю	177 В
Нейланд	Nijland	33 С	134 В
Нернст	Nernst	35 С	95 В
Неуймин	Neujmin	27 Ю	125 В
Нётер	Nöther	66 С	114 З
Николаев	Nikolaev *	35 С	151 В
Николсон	Nicholson	26 Ю	85 З
Нисина **	Nishina	45 Ю	171 З
Нобель	Nobel	15 С	101 З
Нумеров	Numerov	71 Ю	161 З
Нунн	Nunn	4 С	91 В
Нушль	Nušl	32 С	167 В
Ньепс	Niépce	72 С	120 З
Обручев	Obruchev *	39 Ю	162 В
О'Дей	O'Day	31 Ю	157 В
Олден	Alden	24 Ю	111 В
Олкотт	Olcott	20 С	117 В
Олтер	Alter	19 С	108 З
Ом	Ohm	18 С	114 З
Омар Хайям	Omar Khayyam	58 С	102 З
Оппенгеймер **	Oppenheimer	35 Ю	166 З
Орем	Oresme	43 Ю	169 З
Орлов	Orlov	26 Ю	175 З
Оствальд	Ostwald	11 С	122 В
Павлов	Pavlov	28 Ю	142 В

Russian spelling	Latin spelling	coordinates latitude	coordinates longitude
	Craters		
Панет	Paneth	63°С	95°З
Паннекук	Pannekoek	4 Ю	140 В
Папалекси	Papaleksi	10 С	164 В
Параскевопулос	Paraskevopoulos	50 С	150 З
Парацельс	Paracelsus	23 Ю	163 В
Паренаго	Parenago	26 С	109 З
Паркхёрст	Parkhurst	34 Ю	103 В
Парсонс	Parsons	37 С	171 З
Пастер	Pasteur	12 Ю	105 В
Паули	Pauli	45 Ю	136 В
Пацаев	Patsaev	17 Ю	133 В
Пашен	Paschen	14 Ю	141 З
Перельман	Perel'man	24 Ю	106 В
Перепелкин	Perepelkin	10 Ю	128 В
Перкин	Perkin	47 С	176 З
Perрайн	Perrine	42 С	129 З
Петров	Petrov	61 Ю	88 В
Петропавловский	Petropavlovskij	37 С	115 З
Петтит	Pettit	27 Ю	86 З
Пецваль	Petzval	63 Ю	113 З
Пиз	Pease	13 С	106 З
Пирке	Pirquet	20 Ю	140 В
Питри	Petrie	45 С	108 В
Пиццетти	Pizzetti	35 Ю	119 В
Пламмер	Plummer	25 Ю	155 З
Планк	Planck	58 Ю	135 В
Пласкетт **	Plaskett	82 С	175 В
Погсон	Pogson	42 Ю	111 В
Пози	Pawsey	44 С	145 В
Пойнтинг	Poynting	17 С	133 З
Ползунов	Polzunov	26 С	115 В
Попов	Popov	17 С	99 В
Прагер	Prager	4 Ю	131 В
Прандтль	Prandtl	60 Ю	141 В
Пристли	Priestly	57 Ю	108 В
Пуанкаре	Poincaré	57 Ю	161 В
Пуансо	Poinsot	79 С	145 З
Пуркинье	Purkyně	1 Ю	95 В

Russian spelling	Latin spelling	coordinates latitude	longitude
	Craters		
Разумов	Razumov	39°С	114°З
Райе	Ryet	45 С	114 В
Раймонд	Raimond	14 С	159 З
Рака	Racah	14 Ю	180
Рамзай **	Ramsay	40 Ю	145 В
Рентген	Röntgen	33 С	92 З
Ридберг	Rydberg	47 Ю	96 З
Ридель	Riedel	49 Ю	140 З
Рикко	Ricco	75 С	177 В
Риттенхаус	Rittenhouse	74 Ю	107 В
Ритц	Ritz	15 Ю	92 В
Робертс	Roberts	71 С	175 З
Робертсон	Robertson	22 С	105 З
Рождественский	Rozhdestvenskij	86 С	155 З
Роуланд	Rowland	57 С	163 З
Рош	Roche	42 Ю	135 В
Румфорд	Rumford	29 Ю	170 З
Рынин	Rynin	47 С	104 З
Рэлей	Rayleigh	29 С	90 В
Сартон	Sarton	49 С	121 З
Саха	Saha	2 Ю	103 В
Сванн	Swann	52 С	112 В
Сегерс	Segers	47 С	128 В
Сейферт	Seyfert	29 С	114 В
Сент-Джон ***	St. John	10 С	150 В
Серпинский	Sierpiński	27 Ю	155 В
Сеченов	Sechenov *	7 Ю	143 З
Сирано де Бержерак	Cyrano de Bergerac	20 Ю	157 В
Сирс	Seares	74 С	145 В
Сисакян	Sisakyan *	41 С	109 В
Скалигер	Scaliger	27 Ю	109 В
Склодовская	Sklodowska	18 Ю	96 В
Скьеллеруп	Schjellerup	69 С	157 В
Слайфер	Slipher	49 С	160 В
Смолуховский	Smoluchowski	60 С	97 З
Снядецкий	Sniadecki	22 Ю	169 З
Сомнер **	Sumner	37 С	109 В
Спенсер Джонс	Spencer-Jones	13 С	166 В

Russian spelling	Latin spelling	coordinates latitude	coordinates longitude
	Craters		
Спиру Харет	Spiru Haret	59°Ю	176°З
Стеббинс	Stebbins	65 С	143 З
Стеклов	Steklov	37 Ю	105 З
Стено	Steno	33 С	162 В
Стетсон	Stetson	40 Ю	119 З
Стефан **	Stefan	46 С	109 З
Столетов	Stoletov	45 С	155 З
Стони	Stoney	56 Ю	156 З
Страттон	Stratton	6 Ю	165 В
Стрёмгрен	Strömgren	22 Ю	133 З
Субботин	Subbotin	29 Ю	135 В
Сцилард **	Szilard	34 С	106 В
Сэнфорд **	Sanford	32 С	139 З
Тейсеран де Бор	Teisserenc de Bort	32 С	137 З
Тен Бруггенкате **	Ten Bruggencate	9 Ю	134 В
Терешкова	Tereshkova *	28 С	145 В
Тесла	Tesla	38 С	125 В
Тилинг	Tiling	52 Ю	132 З
Тиль	Thiel	40 С	134 З
Тимирязев	Timiryazev *	5 Ю	147 З
Тиндаль **	Tyndall	35 Ю	117 В
Тиссен	Thiessen	75 С	169 З
Титов	Titov	28 С	151 В
Тихов	Tikhov *	62 С	172 В
Тихомиров ***	Tikhomirov *	25 С	162 В
Тициус	Titius	27 Ю	101 В
Томсон	Thomson	33 Ю	166 В
Трамплер **	Trumpler	28 С	168 В
Уайлд	Wyld	1 Ю	98 В
Уайт	White	45 Ю	160 З
Узо	Houzeau	28 Ю	124 З
Уинлок	Winlock	35 С	106 З
Уокер	Walker	26 Ю	162 З
Уотерман	Waterman	26 Ю	128 В
Уотсон	Watson	63 Ю	124 З
Фабри	Fabry	43 С	101 В
Фаулер	Fowler	43 С	145 З
Феньи	Fen'yi	45 Ю	105 З

LIST 1 (continued)

Russian spelling	Latin spelling	coordinates latitude	longitude

Craters

Феоктистов	Feoktistov	31°С	140°В
Ферми	Fermi	20 Ю	122 В
Ферсман	Fersman	18 С	126 З
Фесенков	Fesenkov	23 Ю	135 В
Фехнер	Fechner	59 Ю	125 В
Физо	Fizeau	58 Ю	133 З
Фирсов	Firsov	4 С	112 В
Фицджералд	Fitzgerald	27 С	172 З
Флеминг	Fleming	15 С	109 В
Фокас	Focas	34 Ю	94 З
Фокс	Fox	0	98 В
Фон дер Пален	Von der Pahlen	25 Ю	133 З
Фон Карман	Von Kármán	45 Ю	176 В
Фон Нейман **	Von Neumann	40 С	153 В
Фон Цейпель **	Von Zeipel	42 С	142 З
Фостер	Foster	23 С	142 З
Фрёлих	Froelich	80 С	110 З
Фридман	Fridman	13 Ю	127 З
Фрейндлих **	Freundlich	25 С	171 В
Фрост	Frost	37 С	119 З
Хаген	Hagen	48 Ю	135 В
Харриот **	Harriot	33 С	114 В
Хатанака	Hatanaka	29 С	122 З
Хвольсон	Chwol'son	14 Ю	112 В
Хевисайд	Heaviside	11 Ю	167 В
Хейл	Hale	47 Ю	90 В
Хейманс	Heymans	75 С	144 З
Хейфорд	Hayford	13 С	176 З
Хелберг	Helberg	22 С	102 З
Хендрикс	Hendrix	48 Ю	161 З
Хеньи	Henyey	13 С	152 З
Хесс	Hess	54 Ю	174 В
Хили	Healy	32 С	111 З
Хираяма	Hirayama	6 Ю	93 В
Хогг	Hogg	34 С	122 В
Холечек	Holetschek	28 Ю	151 В
Хоман **	Hohmann	18 Ю	94 З
Цандер	Tsander	5 С	149 З

LIST 1 (continued)

Russian spelling	Latin spelling	coordinates latitude	longitude
	Craters		
Цераский	Tseraskij	49°Ю	141°В
Цзу Чун-чжи	Tsu Chung-Chi	17 С	144 В
Цингер	Tsinger	57 С	176 В
Циолковский	Tsiolkovskij	20 Ю	129 В
Чант	Chant	41 Ю	110 З
Чаплыгин	Chaplygin	6 Ю	150 В
Чаппелл	Chappell	55 С	177 З
Чаффи	Chaffee	39 Ю	155 З
Чебышев	Chebyshev *	34 Ю	133 З
Чемберлин	Chamberlin	59 Ю	96 В
Чендлер	Chandler	44 С	171 В
Чепмен	Chapman	50 С	101 З
Чернышев	Chernyshev *	47 С	174 В
Чжан Хэн	Chang Heng	19 С	112 В
Чосер	Chaucer	3 С	140 З
Шайн	Shajn *	33 С	172 В
Шампольон	Champollion	37 С	175 В
Шарлье	Charlier	36 С	132 З
Шаронов	Sharonov *	13 С	173 В
Шаталов	Shatalov *	24 С	140 В
Шафаржик	Šafařik	10 С	177 В
Шварцшильд	Schwarzschild	71 С	120 В
Шеберле	Schaëberle	26 Ю	117 В
Шёнфельд	Schönfeld	45 С	98 З
Ши Шэнь	Shi Shen	76 С	105 В
Шлезингер	Schlesinger	47 С	138 З
Шлиман **	Schliemann	2 Ю	155 В
Шнеллер	Schneller	42 С	164 З
Шовене	Chauvenet	12 Ю	137 В
Шорр	Schorr	19 Ю	90 В
Шрёдингер	Schrödinger	75 Ю	133 В
Штарк	Stark	7 С	179 В
Штейн	Stein	7 С	179 В
Штернберг	Sternberg	19 С	117 З
Штёрмер	Störmer	57 С	145 В
Шустер	Schuster	4 С	147 В
Эванс	Evans	10 Ю	134 З
Эвершед	Evershed	36 С	160 З

LIST 1 (end)

Russian Spelling	Latin spelling	coordinates latitude	longitude
	Craters		
Эдисон	Edison	25°С	100°В
Эйкман	Eijkman	63 Ю	142 З
Эйнтховен	Einthoven	5 Ю	110 В
Эйткен	Aitken	17 Ю	173 В
Элви ***	Elvey	9 С	101 З
Эллерман	Ellerman	26 Ю	121 З
Эллисон	Ellison	55 С	108 З
Эмден	Emden	63 С	176 З
Энгельгардт	Engel'gardt	5 С	159 З
Эно-Пельтри	Esnault-Pelterie	47 С	142 З
Эплтон **	Appleton	37 С	158 В
Эрлих	Ehrlich	41 С	172 З
Эрро	Erro	6 С	98 В
Эспин	Espin	28 С	109 В
Этвёш	Eötvös	36 Ю	134 В
Яблочков	Yablochkov *	61 С	127 В
Ямамото	Yamamoto	59 С	161 В
	Seas (Mares)		
Море Восточное	Mare Orientale	15—25 Ю	92—101 З
Море Мечты	Mare Ingenii	30—40 Ю	159—170 В
Море Москвы	Mare Moscoviense	20—30 С	142—152 В
Море Южное	Mare Australe	30—60 Ю	70—110 В
	Mountains (Montes)		
Кордильеры	Montes Cordillera	5—35 Ю	78—110 З
Скалистые горы[1]	Montes Rook	8—30 Ю	84—105 З
	Valleys (Valles)		
Долина Планка	Vallis Planck	50—63 Ю	122—128 В
Долина Шрёдингера	Vallis Schrödinger	60—67 Ю	100—110 В

Note: One asterisk in the list notes names explained in Appendix 1; two asterisks - in Appendix 2, and three - in Appendix 3.

[1]The spelling "Gory Ruk" that exists on the Soviet maps is an incorrect transcription of the Latin Montes Rook. The latter is the Latinization of the English "Rocky Mountains" (a mountain range in North America). This name traditionally has a translated form on geographical maps - Skalistyye gory.

LIST 2

Names of craters on the dark side of the moon (in Latin alphabetical order).

Abbe	Аббе	Blazhko	Блажко,
Abul Wafa	Абу-ль-Вафа	Bobone	Бобоне
Aitken	Эйткен	Boltzmann	Больцман
Al-Biruni	Аль-Бируни	Bolyai	Больяй
Alden	Олден	Borman	Борман
Alekhin	Алёхин	Bose	Бозе
Alter	Олтер	Boyle	Бойль
Amici	Амичи	Bragg	Брэгг
Anders	Андерс	Brashear	Брашир
Anderson	Андерсон	Bredikhin	Бредихин
Antoniadi	Антониади	Bridgman	Бриджмэн
Apollo	Аполлон	Brouwer	Брауэр
Appleton	Эплтон	Brunner	Бруннер
Arrhenius	Аррениус	Buffon	Бюффон
Artamonov	Артамонов	Buisson	Бюиссон
Artem'ev	Артемьев	Butlerov	Бутлеров
Avicenna	Авиценна	Buys-Ballot	Бейс-Баллот
Avogadro	Авогадро	Cabannes	Кабанн
Babakin	Бабакин	Cajori	Каджори
Babcock	Бэбкок	Campbell	Кэмпбелл
Baklund	Баклунд	Cannizzaro	Канниццаро
Baldet	Бальде	Cantor	Кантор
Barbier	Барбье	Carnot	Карно
Barringer	Баррииджер	Carver	Карвер
Bartels	Бартельс	Cassegrain	Кассегрен
Becquerel	Беккерель	Catalan	Каталан
Bečvař	Бечварж	Chaffee	Чаффи
Beijerinck	Бейеринк	Chamberlin	Чемберлин
Bel'kovich	Белькович	Champollion	Шампольон
Bell	Белл	Chandler	Чендлер
Bellinsgauzen	Беллинсгаузен	Chang Heng	Чжан Хэн
Belopol'skij	Белопольский	Chant	Чант
Belyaev	Беляев	Chaplygin	Чаплыгин
Bergstrand	Бергстранд	Chapman	Чепмен
Berkner	Беркнер	Chappell	Чаппелл
Berlage	Берлаге	Charlier	Шарлье
Bhabha	Баба	Chaucer	Чосер
Birkeland	Биркеланд	Chauvenet	Шовене
Birkhoff	Биркхоф	Chebyshev	Чебышев
Bjerknes	Бъеркнес	Chernyshev	Чернышев

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LIST 2 (continued)

Chrétien	Кретьен
Chwol'son	Хвольсон
Clark	Кларк
Coblentz	Кобленц
Cockcroft	Кокрофт
Compton	Комптон
Comrie	Комри
Comstock	Комсток
Congreve	Конгрив
Cooper	Купер
Coriolis	Кориолис
Coulomb	Кулон
Cremona	Кремона
Crocco	Крокко
Crommelin	Кроммелин
Crookes	Крукс
Curie	Кюри
Cyrano de Bergerac	Сирано де Бержерак
Daedalus	Дедал
D'Alembert	Д'Аламбер
Danjon	Данжон
Dante	Данте
Das	Дас
Davisson	Дэвиссон
Dawson	Доусон
Debye	Дебай
De Forest	Де Форест
Dellinger	Деллинджер
Delporte	Дельпорт
Denning	Деннинг
De Roy	Де Руа
Deutsch	Дёйч
De Vries	Де Фриз
Dewar	Дьюар
Dirichlet	Дирихле
Dobrovol'skij	Добровольский
Donner	Доннер
Doppler	Доплер
Douglass	Дуглас
Dreyer	Дрейер
Drude	Друде
Dryden	Драйден
Dufay	Дюфе
Dugan	Дэган
Dunér	Дунер
Dyson	Дайсон
Dziewulski	Дзевульский
Edison	Эдисон
Ehrlich	Эрлих
Eijkman	Эйкман
Einthoven	Эйнтховен
Ellerman	Эллерман
Ellison	Эллисон
Elvey	Элви
Emden	Эмден
Engel'gardt	Энгельгардт
Eötvös	Этвёш
Erro	Эрро
Esnault-Pel'e-rie	Эно-Пельтри
Espin	Эспин
Evans	Эванс
Evdokimov	Евдокимов
Evershed	Эвершед
Fabry	Фабри
Fechner	Фехнер
Fen'yi	Феньи
Feoktistov	Феоктистов
Fermi	Ферми
Fersman	Ферсман
Fesenkov	Фесенков
Firsov	Фирсов
Fitzgerald	Фицджералд
Fizeau	Физо
Fleming	Флеминг
Focas	Фокас
Foster	Фостер
Fowler	Фаулер
Fox	Фокс
Freundlich	Фрейндлих
Fridman	Фридман
Froelich	Фрёлих
Frost	Фрост

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LIST 2 (continued)

Gadomski	Гадомский	Hertzsprung	Герцшпрунг
Gagarin	Гагарин	Hess	Хесс
Galois	Галуа	Heymans	Хейманс
Gamow	Гамов	Hilbert	Гильберт
Ganskij	Ганский	Hippocrates	Гиппократ
Ganswindt	Гансвиндт	Hirayama	Хираяма
Garavito	Гаравито	Hoffmeister	Гофмейстер
Gavrilov	Гаврилов	Hogg	Хогг
Geiger	Гейгер	Hohmann	Хоман
Gerasimovich	Герасимович	Holetschek	Холечек
Gernsback	Гернсбак	Houzeau	Узо
Ginzel	Гинцель	Hutton	Геттон
Giordano Bruno	Джордано-Бруно	Ibn Yunus	Ибн Юнус
Glazenap	Глазенап	Icarus	Икар
Golitsyn	Голицын	Idel'son	Идельсон
Golovin	Головин	Ingalls	Ингаллс
Grachev	Грачев	Innes	Иннес
Graff	Графф	Ioffe	Иоффе
Green	Грин	Izsak	Ижак
Gregory	Грегори	Jackson	Джэксон
Grigg	Григг	Jeans	Джинс
Grissom	Гриссом	Jenner	Дженнер
Grotrian	Гротриан	Joliot	Жолио
Gullstrand	Гюльстранд	Joule	Джоуль
Gum	Гам	Jules Verne	Жюль Верн
Guthnick	Гутник	Kamerlingh Onnes	Камерлинг Оннес
Guyot	Гюйо	Karpinskij	Карпинский
Hagen	Хаген	Katchalsky	Качальский
Hale	Хейл	Kearons	Киронс
Harriot	Харриот	Keeler	Килер
Hartmann	Гартман	Kekulé	Кекуле
Harvey	Гарвей	Kibal'chich	Кибальчич
Hatanaka	Хатанака	Kidinnu	Кидинну
Hayford	Хейфорд	Kimura	Кимура
Healy	Хили	King	Кинг
Heaviside	Хевисайд	Kirkwood	Кирквуд
Helberg	Хелберг	Klejmenov	Клейменов
Henderson	Гендерсон	Klute	Клют
Hendrix	Хендрикс	Koch	Кох
Henyey	Хеньи	Kohlschütter	Кольшюттер
Hertz	Герц	Kolhörster	Кольхёрстер

LIST 2 (continued)

Komarov	Комаров
Kondratyuk	Кондратюк
Konstantinov	Константинов
Kopff	Копф
Korolev	Королев
Kostinskij	Костинский
Kovalevskaya	Ковалевская
Koval'skij	Ковальський
Kramers	Крамерс
Krasovskij	Красовский
Krylov	Крылов
Kugler	Куглер
Kulik	Кулик
Kuo Shou Ching	Го Шоу-цзян
Kurchatov	Курчатов
Lacchini	Лаккини
Lamb	Лэмб
Lampland	Лампланд
Landau	Ландау
Lane	Лейн
Langemak	Лангемак
Langevin	Ланжевен
Langmuir	Ленгмюр
Larmor	Лармор
Laue	Лауэ
Lauritsen	Лауритсен
Leavitt	Ливитт
Lebedev	Лебедев
Lebedinskij	Лебединский
Leeuwenhoek	Левенгук
Leibnitz	Лейбниц
Lemaître	Леметр
Lenz	Ленц
Leonov	Леонов
Leucippus	Левкипп
Leuschner	Лейшнер
Levi-Civita	Леви-Чивита
Lewis	Льюис
Ley	Лей
Lindblad	Линдблад
Litke	Литке
Lobachevskij	Лобачевский
Lodygin	Лодыгин
Lomonosov	Ломоносов
Lorentz	Лоренц
Love	Ляв
Lovelace	Лавлейс
Lovell	Лавелл
Lowell	Лоуэлл
Lucretius	Лукреций
Ludwig	Людвиг
Lundmark	Лундмарк
Lyman	Лайман
Mach	Мах
Maksutov	Максутов
Malyi	Малый
Mandel'shtam	Мандельштам
Marci	Марци
Marconi	Маркони
Mariotte	Мариотт
Maunder	Маундер
Maxwell	Максвелл
McKellar	Мак-Келлар
McLaughlin	Мак-Лафлин
McMath	Мак-Мат
McNally	Мак-Налли
Mechnikov	Мечников
Mees	Миз
Meggers	Меггерс
Meitner	Мейтнер
Mendel	Мендель
Mendeleev	Менделеев
Merrill	Меррилл
Meshcherskij	Мещерский
Mezentsev	Мезенцев
Michelson	Майкельсон
Milankovič	Миланкович
Millikan	Милликен
Mills	Миллс
Milne	Милн
Mineur	Минёр
Minkowski	Минковский

LIST 2 (continued)

Minnaert	Миннарт
Mitra	Митра
Möbius	Мёбиус
Mohorovičič	Мохоровичич
Moiseev	Моисеев
Montgolfier	Монгольфье
Moore	Мур
Morozov	Морозов
Morse	Морзе
Moseley	Мозли
Moulton	Мультон
Nagaoka	Нагаока
Nansen	Нансен
Nassau	Нассау
Nernst	Нернст
Neujmin	Неуймин
Nicholson	Николсон
Nièpce	Ньепс
Nijland	Нейланд
Nikolaev	Николаев
Nishina	Нисина
Nobel	Нобель
Nöther	Нётер
Numerov	Нумеров
Nunn	Нунн
Nušl	Нушль
Obruchev	Обручев
O'Day	О'Дей
Ohm	Ом
Olcott	Олкотт
Omar Khayy-am	Омар Хайям
Oppenheimer	Оппенгеймер
Oresme	Орем
Orlov	Орлов
Ostwald	Оствальд
Paneth	Панет
Pannekoek	Паннекук
Papaleksi	Папалекси
Paracelsus	Парацельс
Paraskevopou-los	Параскевопулос
Parenago	Паренаго
Parkhurst	Паркхёрст
Parsons	Парсонс
Paschen	Пашен
Pasteur	Пастер
Patsaev	Пацаев
Pauli	Паули
Pavlov	Павлов
Pawsey	Пози
Pease	Пиз
Perel'man	Перельман
Perepelkin	Перепелкин
Perkin	Перкин
Perrine	Перрайн
Petrie	Питри
Petropavlov-skij	Петропавлов-ский
Petrov	Петров
Pettit	Петтит
Petzval	Пецваль
Pirquet	Пирке
Pizzetti	Пиццетти
Planck	Планк
Plaskett	Пласкетт
Plummer	Пламмер
Pogson	Погсон
Poincaré	Пуанкаре
Poinsot	Пуансо
Polzunov	Ползунов
Popov	Попов
Poynting	Пойнтинг
Prager	Прагер
Prandtl	Прандтль
Priestly	Пристли
Purkyně	Пуркинье
Quételet	Кетле
Racah	Рака
Raimond	Раймонд
Ramsay	Рамзай
Rayet	Райе
Rayleigh	Рэлей
Razumov	Разумов

LIST 2 (continued)

Ricco	Рикко	Sklodowska	Склодовская
Riedel	Ридель	Slipher	Слайфер
Rittenhouse	Риттенхаус	Smoluchowski	Смолуховский
Ritz	Ритц	Sniadecki	Снядецкий
Roberts	Робертс	Sommerfeld	Зоммерфельд
Robertson	Робертсон	Spencer Jones	Спенсер Джонс
Roche	Рош	Spiru Haret	Спиру Харет
Röntgen	Рентген	St. John	Сент-Джон
Rowland	Роуланд	Stark	Штарк
Rozhdestvens-kij	Рождественский	Stebbins	Стеббинс
		Stefan	Стефан
Rumford	Румфорд	Stein	Штейн
Rydberg	Ридберг	Steklov	Стеклов
Rynin	Рынин	Steno	Стено
Saenger	Зенгер	Sternberg	Штернберг
Šafařik	Шафаржик	Stetson	Стетсон
Saha	Саха	Stoletov	Столетов
Sanford	Сэнфорд	Stoney	Стони
Sarton	Сартон	Störmer	Штёрмер
Scaliger	Скалигер	Stratton	Страттон
Schaeberle	Шеберле	Strömgren	Стрёмгрен
Schjellerup	Скъеллеруп	Subbotin	Субботин
Schlesinger	Шлезингер	Sumner	Сомнер
Schliemann	Шлиман	Sundman	Зундман
Schneller	Шнеллер	Swann	Сванн
Schönfeld	Шёнфельд	Szilard	Сцилард
Schorr	Шорр	Teisserenc de Bort	Тейсеран де Бор
Schrödinger	Шрёдингер	Ten Bruggen-cate	Тен Бруггенка-те
Schuster	Шустер		
Schwarzschild	Шварцшильд		
Seares	Сирс	Tereshkova	Терешкова
Sechenov	Сеченов	Tesla	Тесла
Segers	Сегерс	Thiel	Тиль
Seidel	Зайдель	Thiessen	Тиссен
Seyfert	Сейферт	Thomson	Томсон
Shajn	Шайн	Tikhomirov	Тихомиров
Sharonov	Шаронов	Tikhov	Тихов
Shatalov	Шаталов	Tiling	Тилинг
Shi Shen	Ши Шэнь	Timiryazev	Тимирязев
Siedentopf	Зидентопф	Titius	Тициус
Sierpiński	Серпинский	Titov	Титов
Sisakyan	Сисакян	Trumpler	Трамплер

LIST 2 (end)

Tsander	Цандер	Von Neumann	Фон Нейман
Tseraskij	Цераский	Von Zeipel	Фон Цейпель
Tsinger	Цингер	Voskresenskij	Воскресенский
Tsiolkovskij	Циолковский	Walker	Уокер
Tsu Chung-Chi	Цзу Чун-чжи	Wan Hoo	Ван Гу
		Waterman	Уотерман
Tyndall	Тиндаль	Watson	Уотсон
Valier	Валье	Weber	Вебер
Van de Graaff	Ван Де Грааф	Wegener	Вегенер
Van den Bergh	Ван ден Берг	Wells H. G.	Герберт Уэллс
Van der Waals	Ван дер Ваальс	Wexler	Векслер
Van Gent	Ван Гент	Weyl	Вейль
Van Maanen	Ван Маанен	White	Уайт
Van Rhijn	Ван Рейн	Wiechert	Вихерт
Van't Hoff	Вант Гофф	Wiener	Винер
Van-Wijk	Ван-Вейк	Wilsing	Вильзинг
Vashakidze	Вашакидзе	Winkler	Винклер
Vavilov	Вавилов	Winlock	Уинлок
Vening-Meinesz	Венинг-Мейнес	Woltjer	Волтьер
		Wood	Вуд
Ventris	Вентрис	Wyld	Уайлд
Vernadskij	Вернадский	Yablochkov	Яблочков
Vesalius	Везалий	Yamamoto	Ямамото
Vestine	Вестин	Zanstra	Занстра
Vetchinkin	Ветчинкин	Zeeman	Зееман
Vil'ev	Вильев	Zelinskij	Зелинский
Volkov	Волков	Zernike	Зернике
Volterra	Вольтерра	Zhiritskij	Жирицкий
Von der Pahlen	Фон дер Пален	Zhukovskij	Жуковский
Von Karman	Фон Карман	Zsigmondy	Жигмонди

Appendix 1

List of names requiring refinement of the Latin spelling

Russian name	Latin spelling according to IAU list	spelling by academic Latinization
Алехин	Alekhin	Alechin
Артемьев	Artem'ev	Artem'jev
Белькович	Belkovich	Bel'kovič
Беляев	Belyaev	Bel'ajev
Блажко	Blazhko	Blažko
Бредихин	Bredikhin	Bredichin
Вашакидзе	Vashakidze	Vašakidze
Ветчинкин	Vetchinkin	Vetčinkin
Вильев	Vil'ev	Vil'jev
Герасимович	Gerasimovich	Gerasimovič
Голицын	Golitsyn	Golicyn
Грачев	Grachev	Gračev
Жирицкий	Zhiritskij	Žiritskij
Жуковский	Zhukovskij	Žukovskij
Кибальчич	Kibal'chich	Kibal'čič
Ковалевская	Kovalevskaya	Kovalevskaja
Кондратюк	Kondratyuk	Kondrat'uk
Курчатов	Kurchatov	Kurčatov
Лобачевский	Lobachevskij	Lobačevskij
Мечников	Mechnikov	Mečnikov
Мещерский	Meshcherskij	Meščerskij
Николаев	Nikolaev	Nikolajev
Обручев	Obruchev	Obručev
Сеченов	Sechenov	Sečenov
Сисакян	Sisakyan	Sisak'an
Терешкова	Tereshkova	Tereškova
Тимирязев	Timiryazev	Timirjazev
Тихов	Tikhov	Tichov
Тихомиров	Tikhomirov	Tichomirov
Чаплыгин	Chaplygin	Čaplygin
Чебышев	Chebyshev	Čebyšev
Чернышев	Chernyshov	Černyšov
Шайн	Shajn	Šajn
Шаронов	Sharonov	Šaronov
Шаталов	Shatalov	Šatalov
Яблочков	Yablochkov	Jabločkov

Note: Russian last names should be transcribed into Latin according to the Resolution of the General Meeting of the Academy of Sciences of the U.S.S.R. in 1925; the system was supplemented and refined in 1939 by Academician L. V. Shcherba and in 1961 1967 by Professor A. A. Reformatskiy. The names of lunar objects based on the last names of Russian and Soviet scientists whose last names are of foreign origin should be written in the Latin variation according to the system of academic Latinization like other Russian names.

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Appendix 2

List of names whose Russian spelling requires explanation.

Russian Transcription: Traditional spelling	spelling according to the rules of transcription from different languages	national spelling

First group: Traditional spelling of transcribed last names.

1.1 non-doubling of the consonant

Биркхоф	Биркхофф	Birkhoff
Ван де Грааф	Ван де Грааფф	Van de Graaff
Венинг-Мейнес	Венинг-Мейнесс	Vening-Meinesz
Гартма́н	Хартманн	Hartmann
Гофмейстер	Хоффмайстер	Hoffmeister
Кемпбел	Кэмпбелл	Campbell
Кокрофт	Коккрофт	Cockcroft
Копф	Копфф	Kopff
Пласкет	Пласкетт	Plaskett
Тиндаль	Тиндалл	Tyndall
Хоман	Хоманн	Hohmann
Шлиман	Шлиманн	Schliemann
Эплтон	Эпплтон	Appleton

1.2 Traditional transcription of "h" through "r"

Гарвей	Харвей	Harvey
Гартман	Хартманн	Hartmann
Гендерсон	Хендерсон	Henderson
Герцшпрунг	Херцшпрунг	Hertzsprung
Геттон	Хаттон	Hutton
Гильберт	Хильберт	Hilbert
Гиппократ	Хиппократ	Hippocrates
Гофмейстер	Хоффмайстер	Hoffmeister
Оппенгеймер	Оппенхаймер	Oppenheimer

1.3 Traditional transcription of -ei, -ey, as -ey, -ey

Гейгер	Гайгер	Geiger
Гофмейстер	Хоффмайстер	Hoffmeister
Дейч	Дойч	Deutsch
Мейтнер	Майтнер	Meitner
Оппенгеймер	Оппенхаймер	Oppenheimer
Фон Нейман	Фон Нойман	Von Neuman
Фон Цейпель	Фон Цайпель	Von Zeipel

Russian transcription: Traditional spelling	spelling according to the rules of transcription from different languages	national spelling
	1.4 Seperate frequency violations of the rules of transcription	
Гюйо, Гайот	Гийо	Guyot
Стефан	Штефан	Stefan
Сцилард	Силард	Szilard

Second group: deviation from traditional spelling (in the modern literature)

Больяй	Бойяи	Bolyai
Хузо	Узо	Houzeau
Гарриот	Харриот	Harriot
Гофмейстер	Хоффмайстер	Hoffmeister

Third group: erroneous spelling encountered in the modern literature (it cannot be considered traditional inasmuch as contemporaries are being discussed).

Брауер	Брауэр	Brouwer
Бриджмэн	Бриджмен	Bridgman
Бруггенкате	Тен-Бруггенкате	Ten Bruggencate
Брэшир	Брашир	Brashear
Бэбкок	Бабкок	Babcock
Ван-Райн	Ван-Рейн	Van Rijn
Вейл	Вейль	Weyl
Дэган	Дуган	Dugan
Лейшнер	Лойшнер	Leuschner
Ливит	Ливитт	Leavitt
Ловелл	Лавелл	Lovell
Ляв	Лав	Love
Нишина	Нисина	Nishina
Рамзей	Рамзай	Ramsay
Сомнер	Самнер	Sumner
Сэнфорд	Санфорд	Sanford
Трюмплер, Трем-плер	Трамплер	Trumpler
Фрейндлих	Фройндлих	Freundlich

Appendix 3

List of names of craters whose coordinates need refining.

crater	coordinates latitude	longitude	note
Van Maanen			
Van Maanen	36°N	127°E	Very badly recognized in photographs (strongly broken)
Lewis	19°S	114°W	poorly pronounced in relief, formless depression
Saint John	10°N	150°E	Very badly recognized in photographs, irregularly shaped depression
Tikhomirov	25°C	162°E	Very badly pronounced in relief, depression without clear boundaries.
Elvi	9°N	101°W	Badly recognized in photographs, irregularly shaped depression.

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